

substrate be at a temperature of from 670°C to 720°C, the basis for which can be found, for example, on page 4 line 10 of the application. New claim 44 is a new claim requiring that the source of titanium be a titanium tetraalkoxide (see, e.g., Example 16). New claim 45 is a new claim requiring that the source of titanium be titanium tetraethoxide (see, e.g., Examples 20 to 29). No new matter has been introduced by these amendments.

The Examiner has required restriction under 35 USC §121 between Group I, claims 1-17, drawn to a process for production of photocatalytically active coated substrates, and Group II, claims 18-41, drawn to photocatalytically active articles. The Examiner notes that inventions I and II are related as process of making and product made, concluding that the process can be used to make other and materially different products, and the product as claimed can be made by another materially different process.

During a telephone conference between the Examiner and applicants' undersigned counsel on April 10, 2002, a provisional election was made without traverse to prosecute the invention of Group I, claims 1-17. Applicants hereby affirm the provisional election to prosecute the invention of claims 1-17.

Claims 18-41 have been withdrawn from further consideration by the Examiner as being drawn to a non-elected invention. Claims 42-58 remain in the application for reconsideration.

Claims 1-3 and 13-17 had been rejected under 35 U.S.C. §102(b) as being anticipated by the Greenberg et al U.S. Patent No. 6,027,776 ("Greenberg"). The Examiner concluded that the features of applicant's claims could be found in the abstract, drawings, col. 3, lines 32-45, col. 4, liens 30-63, col. 5, lines 18-46, col. 7, lines 1-11, the examples and the claims.

Applicants respectfully submit that the amended claims are patentable over the disclosure of Greenberg. The invention, as defined in new claim 42, is a process for the production of a

durable photocatalytically active coated glass in which the titania layer has a thickness of less than 40 nm and the substrate is at a temperature in the range 645°C to 720°C during the deposition of the coating.

New claim 42 is inventive over the prior art and specifically over Greenberg in that it defines a process for the production of a photocatalytically active coated glass which is carried out within a specific narrow temperature range (645°C to 720°C) and using conditions so as to provide a relatively thin film having a thickness of less than 40 nm. Such coatings have been discovered to be durable, to be sufficiently photoactive and to exhibit lower visible light reflection than previously known coatings. There is nothing in Greenberg or in the secondary reference WO 98/06675 to Sheel to indicate the use of these particular process conditions.

Anticipation under 35 USC 102(b) requires the presence in a single prior art disclosure (Greenberg) of all the elements of a claimed invention, arranged as in the claim (see *Connell v. Sears, Roebuck & Co.*, 220 USPQ 193, 198 (Fed. Cir. 1983)). As noted, claim 42 requires “depositing on the surface of a glass substrate a photocatalytically active titanium oxide layer having a thickness of less than 40 nm.” The deposition of such a layer at the recited thickness is not described or taught in Greenberg. Greenberg’s very general disclosure of a thickness range of “from about 100 Å to 2500 Å” (column 3, lines 62-64) is not sufficient to supply this element. Moreover, Greenberg clearly teaches away from the recited thickness range, promoting the formation of thicker coatings, preferably at least 500Å (50 nm) (column 3, line 67). There is no specific example in Greenberg in which the thickness of the titanium oxide coating is less than 400 Å. Thus, the thickness range defined in claim 42 is not suggested by the very broad range mentioned in Greenberg, let alone disclosed with sufficient specificity to anticipate claim 42. See MPEP §2131.03.

Additionally, claim 42 requires that the substrate surface be contacted with the fluid mixture when “at a temperature in the range 645°C to 720°C.” With regard to the temperature of the substrate, Greenberg merely teaches that “in the practice of the invention it is preferred to apply the PASC coating when the float ribbon is dimensionally stable e.g. below about 800°C for soda lime silica glass, and the float ribbon is at a temperature to decompose the metal-containing precursor e.g. above about 400 °C.” See column 5, lines 41-46. There is nothing in Greenberg that suggests with any specificity the narrow temperature range defined in claim 42.

For all of these reasons, claim 42 is patentable over Greenberg. In addition, claims 42-46 and 55-58 all depend from claim 42, and are patentable at least on that basis.

Independent claim 47 is also inventive over the prior art, and specifically over Greenberg alone or Greenberg in view of Sheel, in that it defines a process for the production of a coated substrate that is carried out using a particular deposition chemistry to deposit a coating having a thickness of less than 40 nm. The claimed process produces coatings having the improved properties mentioned above in relation to claim 42. As discussed above, Greenberg teaches away from the relatively thin coatings defined by claim 47 and further is silent as to the particular deposition chemistry required by this claim. Sheel teaches the deposition chemistry, but fails to supply any of the deficiencies of Greenberg with regard to the defined thickness of the titanium oxide layer.

Accordingly, the invention as defined in claim 47 is also patentable over the cited references, taken alone or in combination. Claims 47-54 depend from claim 47 and are patentable at least on that basis.

For all of these reasons, applicants respectfully submit that the instant amendment places the application in condition for allowance. Accordingly, it is courteously requested that the application be passed to issue.

In the event the Examiner would prefer language other than that set forth in the claims, it is requested that a telephone interview be had to assist in expediting the prosecution of the application.

Respectfully submitted,



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